

1 **CLAIMS**

2 What is claimed is:

3 Claim 1. A safety enclosure for a powered reel apparatus
4 for use with an associated elongated flexible member
5 comprising:

6 a reel having a hub defining an axis of rotation and a
7 pair of flanges at opposing ends of said hub and
8 perpendicular to said axis of rotation;

9 an enclosure having left and right side wall panels,
10 front and rear wall panels extending between said left and
11 right side wall panels, and a cover panel, said enclosure
12 being constructed and arranged to receive said reel, said
13 reel being rotatably mounted within said enclosure;

14 at least one electric motor constructed and arranged to
15 cooperate with said reel to provide selective power assisted
16 rotational movement of said reel in relation to said
17 enclosure;

18 a control assembly constructed and arranged to
19 electrically connect and disconnect said at least one
20 electric motor to and from an electrical power source,
21 wherein operation of said control assembly in a first mode
22 connects said electrical power source to said electric motor
23 to cause rotation of said reel in relation to said enclosure

1 for powered take-up or pay out of said flexible elongate
2 member, wherein operation of said control assembly in a
3 second mode disconnects said electrical power source from
4 said at least one electric motor;
5 at least one safety interlock means constructed and
6 arranged to cooperate with said control assembly and said
7 enclosure to prevent electrical connection between said
8 electrical power source and said at least one electric motor
9 when at least one of said enclosure panels are in an open
10 position, thereby preventing power assisted operation of said
11 reel.

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13 Claim 2. The safety enclosure in accordance with claim 1
14 wherein, said at least one safety interlock means includes at
15 least one switch means for monitoring said enclosure panels
16 and disconnecting said electrical power source from said at
17 least one electric motor when at least one of said enclosure
18 panels are in an open position.

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20 Claim 3. The safety enclosure in accordance with claim 2
21 wherein, said switch means includes at least one electrical
22 switch, wherein said at least one electrical switch is
23 constructed and arranged to prevent operation of said at

1 least one electric motor when at least one of said enclosure
2 panels are in an open position.

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4 Claim 4. The safety enclosure in accordance with claim 3
5 wherein, said switch means includes at least one mechanically
6 actuated electrical switch, wherein said at least one
7 mechanically actuated electrical switch is constructed and
8 arranged to prevent operation of said at least one electric
9 motor when at least one of said enclosure panels are in an
10 open position.

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12 Claim 5. The safety enclosure in accordance with claim 3
13 wherein, said switch means includes at least one mercury
14 switch, wherein said at least one mercury switch is
15 constructed and arranged to prevent operation of said at
16 least one electric motor when at least one of said enclosure
17 panels are in an open position.

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19 Claim 6. The safety enclosure in accordance with claim 3
20 wherein, said switch means includes at least one proximity
21 switch, wherein said at least one proximity switch is
22 constructed and arranged to prevent operation of said at

1 least one electric motor when at least one of said enclosure
2 panels are in an open position.

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4 Claim 7. The safety enclosure in accordance with claim 3
5 wherein, said switch means includes at least one optical
6 switch, wherein said at least one optical switch is
7 constructed and arranged to prevent operation of said at
8 least one electric motor when at least one of said enclosure
9 panels are in an open position.

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11 Claim 8. The safety enclosure in accordance with claim 1
12 wherein, said at least one safety interlock means includes an
13 anti-tipping means for monitoring and disconnecting said
14 electrical power source from said at least one electric motor
15 when said enclosure is tipped beyond a predetermined range.

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17 Claim 9. The safety enclosure in accordance with claim 8
18 wherein, said anti-tipping means includes at least one switch
19 means, wherein said at least one anti-tipping switch means is
20 constructed and arranged to prevent operation of said at
21 least one electric motor when said enclosure is tipped beyond
22 said predetermined range.

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1 Claim 10. The safety enclosure in accordance with claim
2 9 wherein, said at least one anti-tipping switch means
3 includes at least one mercury switch, wherein said at least
4 one mercury switch is constructed and arranged to prevent
5 operation of said at least one electric motor when said
6 enclosure is tipped beyond said predetermined range.

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8 Claim 11. The safety enclosure in accordance with claim
9 9 wherein, said at least one anti-tipping switch means
10 includes at least one mechanically operated electrical
11 switch, wherein said at least one mechanically actuated
12 electrical switch is constructed and arranged to prevent
13 operation of said at least one electric motor when said
14 enclosure is tipped beyond said predetermined range.

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16 Claim 12. The safety enclosure in accordance with claim
17 1 wherein, said electrical power source utilizes direct
18 current.

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20 Claim 13. The safety enclosure in accordance with claim
21 12 wherein, said direct current power source is a battery
22 assembly, constructed and arranged for electrically polarized
23 and mechanical engagement with said control assembly.

1 Claim 14. The safety enclosure in accordance with claim
2 1 wherein, electrical power source utilizes alternating
3 current.

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5 Claim 15. The safety enclosure in accordance with claim
6 12 wherein, said alternating current power source is
7 household current, constructed and arranged for electrical
8 and mechanical engagement with said control assembly.

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10 Claim 16. The safety enclosure in accordance with claim
11 1 wherein, wherein said enclosure cover includes a pair of
12 hinges for mounting said cover to said enclosure for pivotal
13 movement between a closed position and an open position,
14 wherein said closed position permits powered operation of
15 said reel, wherein said open position locks out powered
16 operation of said reel.

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18 Claim 17. The safety enclosure in accordance with claim
19 16, wherein each said hinge includes a pocket formed in a
20 respective side wall panel and a pin associated and
21 cooperative with each said pocket, each said pocket
22 configured to permit rotational movement of said pins for
23 upward rotational movement of said cover.

1 Claim 18. The safety enclosure in accordance with claim
2 17, wherein said cover includes a depending lip and wherein
3 said pins are formed as cylindrical elements extending from
4 said depending lip, axially aligned with one another.

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6 Claim 19. The safety enclosure in accordance with claim
7 1, wherein said cover includes a releasable latch means for
8 releasably holding said cover in a closed position.

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10 Claim 20. The safety enclosure in accordance with claim
11 19, wherein said releasable latch means includes at least one
12 catch, said at least one catch extending outwardly from said
13 depending lip and cooperating with at least one detent, said
14 at least one detent constructed and arranged to cooperate
15 with said catch and incorporated into said side panels;

16 wherein said cover is opened by lifting the front
17 portion of said cover upwardly, urging said catches past said
18 detents.

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20 Claim 21. The safety enclosure in accordance with claim
21 1, wherein said control assembly includes at least one foot
22 operated switch, wherein at least one of said side wall
23 panels include a foot pedal housing extending inwardly into

1 said side wall panel for housing said foot operated switch,
2 wherein selective operation of said foot operated switch
3 electrically connects said at least one electric motor to
4 said electrical power source for powered take-up of said
5 flexible elongate member, wherein said foot pedal housing is
6 constructed and arranged to protect said foot operated switch
7 from inadvertent operation.

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9 Claim 22. The safety enclosure in accordance with claim
10 1, wherein said control assembly includes at least one hand
11 operated switch, wherein said at least one hand operated
12 switch is secured to one of said wall panels, wherein
13 selective operation of said hand operated switch electrically
14 connects said at least one electric motor to said electrical
15 power source for powered take-up of said flexible elongate
16 member.

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18 Claim 23. The safety enclosure in accordance with claim
19 1, wherein said control assembly includes two hand operated
20 switches, wherein said two hand operated switches are secured
21 to said wall panels, wherein powered take-up of said flexible
22 elongate member requires about simultaneous operation of
23 both hand operated switches, wherein said about simultaneous

1 operation of said two hand operated switches electrically
2 connects said at least one electric motor to said electrical
3 power source, wherein said two hand operated switches are
4 spaced apart sufficiently to require two handed operation.

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6 Claim 24. The safety enclosure in accordance with claim
7 1, wherein said control assembly includes at least one remote
8 operated switch, wherein said at least one remote operated
9 switch provides selectively electrically connects said at
10 least one electric motor to said electrical power source for
11 powered take-up of said flexible elongate member.

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13 Claim 25. The safety enclosure in accordance with claim
14 1, wherein said enclosure includes an opening therein
15 configured for take-up and pay-out of said flexible elongate
16 member when said cover is in the closed position.

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18 Claim 26. The safety enclosure in accordance with claim
19 1, wherein said front wall panel includes a cut-out portion
20 at about a top edge thereof adjacent a junction with said
21 cover when said cover is in the closed position, said cut-out
22 configured for traversing a portion of said flexible hose

1 therethrough to take-up and pay-out said hose with said cover
2 in the closed position.

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4 Claim 27. The safety enclosure in accordance with claim
5 1, wherein said left and right side panels each include
6 elongated sockets formed therein, said sockets extending
7 along the front and back edges thereof and integral with said
8 panels, wherein said front and rear panels include elongated
9 contoured posts extending outwardly from ends thereof and
10 integral therewith, the posts being adapted to insert into
11 the sockets for securing to the left and right panels.

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13 Claim 28. The safety enclosure in accordance with claim
14 1, wherein said left and right side panels each include at
15 least one rubber pad fixedly secured to a bottom surface of
16 each of said left and right side wall panels for engaging a
17 surface to resist skidding of said safety enclosure device
18 during operation.

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20 Claim 29. The safety enclosure in accordance with claim
21 1, wherein said front panel of said enclosure includes an
22 elongated cut-out portion at about a bottom edge thereof
23 extending upwardly, said cut-out configured for accommodating

1 a drawer, said drawer configured to open in a pivotal
2 fashion.

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4 Claim 30. The safety enclosure in accordance with claim
5 29, wherein said drawer is constructed and arranged to
6 include sides and a rear wall to prevent inadvertent reaching
7 into said enclosure during operation of said reel.

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9 Claim 31. The safety enclosure in accordance with claim
10 1, wherein said rear wall panel further includes at least one
11 recessed anchoring aperture, said at least one recessed
12 anchoring aperture configured and arranged to anchor said
13 enclosure to a surface or a suitable structure, whereby
14 unwanted movement of said enclosure is prevented.

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16 Claim 32. The safety enclosure in accordance with claim
17 31, wherein said rear wall panel contains two said recessed
18 anchoring apertures.

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20 Claim 33. The safety enclosure in accordance with claim
21 1, wherein said enclosure further includes a bottom panel,
22 said bottom panel having a first side and a second side, said

1 bottom panel extending substantially between said left,
2 right, front, and rear wall panels.

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4 Claim 34. The safety enclosure in accordance with claim
5 33, wherein said bottom panel is reversible, said first side
6 having a surface constructed for enhanced frictional
7 engagement and said second side having a relatively smooth
8 surface.

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10 claim 35. The safety enclosure in accordance with claim
11 1, wherein said hose winding apparatus further includes a
12 level-wind comprising:

13 a double helix lead screw, said double helix lead screw
14 substantially parallel to and spaced apart from said reel
15 axis of rotation and suitably supported and journaled in said
16 left and said right side wall panels;

17 a guide rod substantially parallel to said reel axis of
18 rotation, suitably supported by said left and said right side
19 wall panels;

20 a carriage, said carriage constructed and arranged to
21 cooperate with said double helix lead screw and said guide
22 rod; and

1 a hose guide gear-train, said gear train constructed and
2 arranged to transfer rotary motion from said reel to said
3 double helix lead-screw;

4 wherein said carriage reciprocates back and forth across
5 said lead screw and said guide rod when said reel is rotated
6 to uniformly and smoothly wrap said flexible elongate member
7 on said reel for a compact storage configuration.

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9 Claim 36. The safety enclosure in accordance with claim
10 35, wherein said carriage includes a follower assembly, said
11 follower assembly constructed and arranged to cooperatively
12 engage said lead-screw.

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14 Claim 37. The safety enclosure in accordance with claim
15 36, wherein said follower assembly is manually disengageable
16 from said lead-screw and manually re-engageable to said lead-
17 screw, wherein said flexible elongate member can be manually
18 pulled from said reel without reciprocation of said level-
19 wind and said level-wind is repositionable and re-engageable
20 to said lead-screw.

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22 Claim 38. The safety enclosure in accordance with claim
23 37, wherein said follower assembly is constructed and

1 arranged for automatic disengagement, wherein said follower
2 assembly disengages said lead-screw thereby preventing said
3 carriage from traversing said lead-screw in the event said
4 carriage path becomes obstructed and said follower is
5 repositionable and re-engageable to said lead-screw.

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